

US EPA ARCHIVE DOCUMENT

CATALOG DOCUMENTATION
EMAP SURFACE WATERS PROGRAM LEVEL DATABASE
1993-1996 MID-ATLANTIC STREAMS DATA
STREAM WATERSHED DATA

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1. DATA SET IDENTIFICATION

1.1 Title of Catalog Document

EMAP Surface Waters Stream Database
1993-1996 Mid-Atlantic Streams
Stream Watershed Characteristic Data Summarized by Stream

1.2 Authors of the Catalog Entry

U.S. EPA NHEERL Western Ecology Division
Corvallis, OR

1.3 Catalog Revision Date

February 1999

1.4 Data Set Name

WATCHR

1.5 Task Group

Surface Waters

1.6 Data Set Identification Code

128

1.7 Version

002

1.8 Requested Acknowledgment

These data were produced as part of the U.S. EPA's Environmental Monitoring and Assessment Program (EMAP). If you publish these data or use them for analyses in publications, EPA requires a standard statement for work it has supported:

"Although the data described in this article have been funded wholly or in part by the U.S. Environmental Protection Agency through its EMAP Surface Waters Program, it has not been subjected to Agency review, and therefore does not necessarily reflect the views of the Agency and no official endorsement of the conclusions should be inferred."

2. INVESTIGATOR INFORMATION

2.1 Principal Investigator

Dr. John Stoddard
U.S. Environmental Protection Agency
NHEERL Western Ecology Division
200 S.W. 35th Street
Corvallis, OR 97333

2.2 Investigation Participant - Sample Collection

Oregon State University
State of Virginia
State of West Virginia
State of Maryland
State of Pennsylvania
University of Maine
U.S. Fish and Wildlife Service
U.S. Environmental Protection Agency
Office of Research and Development
Region III

3. DATA SET ABSTRACT

3.1 Abstract of the Data Set

The primary function of the stream watershed characteristics data is to provide a description of the watershed setting within which the stream exists. The data can provide insight into what the expected conditions in the stream are and insight into the extent to which human activities within the watershed impact the stream quality.

3.2 Keywords for the Data Set

Watershed, land cover, land use, road density, human population, stream watersheds

4. OBJECTIVES AND INTRODUCTION

4.1 Program Objective

The Environmental Monitoring and Assessment Program (EMAP) was designed to periodically estimate the status and trends of the Nation's ecological resources on a regional basis. EMAP provides a strategy to identify and bound the extent, magnitude and location of environmental degradation and improvement on a regional scale based on a probability-based statistical survey design.

4.2 Data Set Objective

This data set is part of a demonstration project to evaluate approaches to monitoring streams in EMAP. The data set contains the results of analysis of the stream watershed and its characteristics which influence stream quality.

4.3 Data Set Background Discussion

Watershed information is gathered to describe the watershed setting, thus helping to define the "expected conditions" for the stream, and to describe the human activities within the watershed which are expected to impact stream quality.

4.4 Summary of Data Set Parameters

Watershed Characterization parameters include physical characteristics such as watershed area, elevation, and approximate distance to ocean. They also include derived human influence characteristics such as land use categorization, housing unit and human population density, and point pollution source characterization.

5. DATA ACQUISITION AND PROCESSING METHODS

5.1 Data Acquisition

5.1.1 Sampling Objective

To obtain a picture of watershed characteristics based on the most recent data sources which are available.

5.1.2 Sample Collection Methods Summary

The watershed for each stream is outlined on a map and digitized into a GIS coverage. This coverage is overlain with other data sources, such as satellite based landcover data, or digital information on road networks, or data bases on point source discharges. The watershed intersection of these coverages is then summarized for each watershed and collapsed into a series of watershed characteristics or metrics.

5.1.3 Sampling Start Date

NA

5.1.4 Sampling End Date

NA

5.1.5 Platform

Desk top

5.1.6 Sampling Gear

Sun Work Station and ARC-INFO GIS software

5.1.7 Manufacturer of Instruments

NA

5.1.8 Key Variables

NA

5.1.9 Sampling Method Calibration
NA

5.1.10 Sample Collection Quality Control
See Lazorchak, et al. 1998.

5.1.11 Sample Collection Method Reference
Chaloud, D.J. and D.V. Peck. 1994. Environmental Monitoring and Assessment Program: Integrated Quality Assurance Project Plan for the Surface Waters Resource Group, 1994 Activities. EPA 600/X-91/080, Rev. 2.00. U.S. Environmental Protection Agency, Las Vegas Nevada.

Lazorchak, J.M., Klemm, D.J., and Peck D.V. (editors). 1998. Environmental Monitoring and Assessment Program- Surface Waters: Field Operations and Methods for Measuring the Ecological Condition of Wadeable Streams. EPA/620/R-94/004F. U.S. Environmental Protection Agency, Washington, D.C.

5.1.12 Sample Collection Method Deviations

5.2 Data Preparation and Sample Processing

5.2.1 Sample Processing Objective
See Lazorchak, et al. (1998) and Chaloud and Peck (1994).

5.2.2 Sample Processing Methods Summary
See Lazorchak, et al. (1998) and Chaloud and Peck (1994).

5.2.3 Sample Processing Method Calibration
See Lazorchak, et al. (1998) and Chaloud and Peck (1994).

5.2.4 Sample Processing Quality Control
See Lazorchak, et al. (1998) and Chaloud and Peck (1994).

5.2.5 Sample Processing Method Reference
See Lazorchak, et al. (1998) and Chaloud and Peck (1994).

6. DATA MANIPULATIONS

6.1 Name of New or Modified Values
None.

6.2 Data Manipulation Description
See Chaloud and Peck (1994).

7. DATA DESCRIPTION

Parameter Data				Parameter
SAS Name	Type	Len	Format	Label

AG_TOT	Num	8		% watershed - agricultural lands
AIREMIS	Num	8		# factories/power plants emitting air pollutants w/i watershed
AREA_WS	Num	8		Watershed area digitized from maps
TRI3	Num	8		# sites monitored by TRIS (Reg 3)
URB_TOT	Num	8		% watershed - urban lands
VIO	Num	8		# sites w/ >=1 emmis vio (1/90-3/95)-PCS)
WETL_TOT	Num	8		% watershed wetlands
WSPTDEN	Num	8		Density of pt. source dischargers (pts/ sq km)
YEARORIG	Num	8		First year sampled
ZAIREMIS	Num	8		# factories/power plants emitting air pollutants w/i the zipcode polygon
ZCERC2	Num	8		# sites monitored by CERCLIS (Reg 2) w/i the zipcode polygons
ZCERC3	Num	8		# sites monitored by CERCLIS (Reg 3) w/i the zipcode polygons
ZIPALL	Num	8		Sum of all point source dischargers within the zipcode polygons
ZIPPL	Num	8		Sum of ZPL2 and ZPL3 in zipcode polygons
ZIPPTDEN	Num	8		Approx. density of pt. source dischargers
ZIP_KM2	Num	8		Area of zipcode polygons (sq km)
ZPCSIFD	Num	8		# discharge sites tracked by PCS within zipcode polygons
ZPL2	Num	8		# "superfund" sites tracked by NPL (Reg 2) within zipcode polygons
ZPL3	Num	8		# "superfund" sites tracked by NPL (Reg 3) within zipcode polygons
ZRCRA2	Num	8		# sites monitored by RCRIS (Reg 2) within zipcode polygons
ZRCRA3	Num	8		# sites monitored by RCRIS (Reg 3) within zipcode polygons
ZTRI2	Num	8		# sites monitored by TRIS (Reg 2) within zipcode polygons
ZTRI3	Num	8		# sites monitored by TRIS (Reg 3) within zipcode polygons
ZVIO	Num	8		# sites w/ >=1 emmis. vio. (1/90-3/95) - PCS within zipcode polygons

7.1.6 Precision to which values are reported

7.1.7 Minimum Value in Data Set

Name	Min

AG_TOT	0
AIREMIS	0
AREA_WS	3.42
ASPCTDEG	1
BAR_TOT	0
CERC2	0
CERC3	0
DISTOT	0
ELEV	10
FOR_TOT	0
H2O_TOT	0
HI_PT	15
HOUDENKM	0
HOUSINGU	0
KM_SEA	6
KM_STRMS	0.002
LAT_DD	36.5535
LON_DD	-83.4888
LTROFF_M	0.3
MAPSCDIG	24000
MINE_TOT	0
NONRES	0
PCSIFD	0
PL2	0
PL3	0
POPDENKM	0
POPEST	0
PRECIP_M	0.73
RCRA2	0
RCRA3	0
RD_DEN	0
SLOPE	0
SUMALL	0
SUMPL	0
TOT_RD	0
TRI2	0
TRI3	0
URB_TOT	0
VIO	0
WETL_TOT	0
WSPTDEN	0
YEARORIG	1993
ZAIREMIS	0
ZCERC2	0
ZCERC3	0
ZIPALL	0
ZIPPL	0
ZIPPTDEN	0
ZIP_KM2	27.2084
ZPCSIFD	0

7.1.7 Minimum Value in Data Set, continued

ZPL2	0
ZPL3	0
ZRCRA2	0
ZRCRA3	0
ZTRI2	0
ZTRI3	0
ZVIO	0

7.1.7 Maximum Value in Data Set

Name	Max

AG_TOT	100
AIREMIS	3
AREA_WS	59445.7
ASPCTDEG	357
BAR_TOT	26.27
CERC2	0
CERC3	1
DISTOT	100
ELEV	1173
FOR_TOT	100.01
H2O_TOT	15.68
HI_PT	1457
HOUDENKM	1205.999
HOUSINGU	19429.414
KM_SEA	518
KM_STRMS	102.726
LAT_DD	42.355663889
LON_DD	-74.2589
LTROFF_M	1.02
MAPSCDIG	250000
MINE_TOT	20.71
NONRES	37.28
PCSIFD	25
PL2	0
PL3	0
POPDENKM	2625.355
POPEST	49394.983
PRECIP_M	1.623
RCRA2	1
RCRA3	0
RD_DEN	113.34
SLOPE	0.42
SUMALL	25
SUMPL	0
TOT_RD	1091459.46
TRI2	0
TRI3	11
URB_TOT	88.61
VIO	3
WETL_TOT	4.9

7.1.7 Maximum Value in Data Set, continued

WSPTDEN 2.977963073
 YEARORIG 1994
 ZAIREMIS 12
 ZCERC2 3
 ZCERC3 3
 ZIPALL 165
 ZIPPL 3
 ZIPPTDEN 0.210387588
 ZIP_KM2 2364.5021
 ZPCSIFD 149
 ZPL2 0
 ZPL3 3
 ZRCRA2 3
 ZRCRA3 0
 ZTRI2 5
 ZTRI3 20
 ZVIO 12

7.2 Data Record Example

7.2.1 Column Names for Example Records

"AG_TOT", "AIREMIS", "AREA_WS", "ASPCTDEG", "BAR_TOT", "CERC2", "CERC3", "COM_STRS",
 "DISTOT", "ELEV", "FEN_SECT", "FOR_TOT", "H2O_TOT", "HI_PT", "HOUDENKM", "HOUSINGU",
 "KM_SEA", "KM_STRMS", "LAT_DD", "LON_DD", "LTROFF_M", "MAPSCDIG", "MINE_TOT",
 "NESTEDWS", "NONRES", "PCSIFD", "PL2", "PL3", "POPDENKM", "POPEST", "PRECIP_M",
 "RCRA2", "RCRA3", "RD_DEN", "SAMPLED", "SECTNAME", "SLOPE", "STRMNAME", "STRM_ID",
 "SUMALL", "SUMPL", "TOT_RD", "TRI2", "TRI3", "URB_TOT", "VIO", "WETL_TOT", "WSPTDEN",
 "YEARORIG", "ZAIREMIS", "ZCERC2", "ZCERC3", "ZIPALL", "ZIPPL", "ZIPPTDEN", "ZIP_KM2",
 "ZPCSIFD", "ZPL2", "ZPL3", "ZRCRA2", "ZRCRA3", "ZTRI2", "ZTRI3", "ZVIO"

7.2.2 Example Data Records

50.16,0,1997.87,154,0,0,0,"XXXXX",50.16,10,"3a",49.84,0,15,6.741,134.669,27,,
 38.52530,-75.63110,0.439,24000,0,"XXXXX",0,0,0,0,17.706,353.747,1.123,0,0,
 12.44,"Yes","EMABAYED_SECTION",0,"TUSOCKY BR","DE750S",0,0,24852.07,0,
 0,0,0,0,0.000000000,1994,0,0,1,3,0,0.008806202,340.6690,2,0,0,0,0,0,0,1

26.15,0,237.97,234,0,0,0," ",26.15,649,"8d",73.85,0,765,5.790,
 13.780,223,1.2,39.68369,-79.47240,0.72,24000,0,
 " ",0,0,0,0,15.370,36.580,1.18,0,0,17.96,"Yes","ALLEGHENY_MOUNTAIN_SECTION",
 0.06,"S. BR. LAUREL RUN","MD507S",0,0,4274.48,0,0,0,0,0,0.000000000,
 1993,0,0,0,31,0,0.058269976,532.0064,31,0,0,0,0,0,0,1

0,0,95.53,320,0,0,0," ",0,652,"8d",100,0,789,1.310,1.250,194,0.709,39.54469,
 -79.18200,0.68,24000,0," ",0,0,0,0,2.890,2.760,1.06,0,0,24.89,
 "Yes","ALLEGHENY_MOUNTAIN_SECTION",0.1,"WATERS RUN","MD508S",
 0,0,2377.54,0,0,0,0,0,0.000000000,1993,1,0,0,28,0,0.071424053,392.0248,27,0,
 0,0,0,0,0,0

8. GEOGRAPHIC AND SPATIAL INFORMATION

8.1 Minimum Longitude

-83 Degrees 14 Minutes 39 Seconds West (-83.24444 Decimal Degrees)

8.2 Maximum Longitude

-74 Degrees 15 Minutes 32 Seconds West (-74.25890 Decimal Degrees)

8.3 Minimum Latitude

36 Degrees 33 Minutes 12 Seconds North (36.55350 Decimal Degrees)

8.4 Maximum Latitude

42 Degrees 21 Minutes 20 Seconds North (42.35566 Decimal Degrees)

8.5 Name of Area or Region

Mid Atlantic: EPA Region III which includes Delaware, Maryland, New York, Virginia, and West Virginia

9. QUALITY CONTROL / QUALITY ASSURANCE

9.1 Data Quality Objectives

See Chaloud and Peck (1994)

9.2 Quality Assurance Procedures

See Chaloud and Peck (1994)

9.3 Unassessed Errors

NA

10. DATA ACCESS

10.1 Data Access Procedures

10.2 Data Access Restrictions

10.3 Data Access Contact Persons

10.4 Data Set Format

10.5 Information Concerning Anonymous FTP

10.6 Information Concerning Gopher and WWW

10.7 EMAP CD-ROM Containing the Data

11. REFERENCES

Chaloud, D.J. and D.V. Peck. 1994. Environmental Monitoring and Assessment Program - Surface Waters: Integrated Quality Assurance Project Plan for the Surface Waters Resource Group. U.S. Environmental Protection Agency. Office of Research and Development. Washington, D.C.

Lazorchak, J.M., Klemm, D.J., and Peck D.V. (editors). 1998. Environmental Monitoring and Assessment Program- Surface Waters: Field Operations and Methods for Measuring the Ecological Condition of Wadeable Streams. EPA/620/R-94/004F. U.S. Environmental Protection Agency, Washington, D.C.

12. TABLE OF ACRONYMS

13. PERSONNEL INFORMATION

Project Manager
Dr. John Stoddard
U.S. Environmental Protection Agency
NHEERL Western Ecology Division
200 S.W. 35th Street
Corvallis, OR 97333
541-754-4441
541-754-4716(FAX)
stoddard@mail.cor.epa.gov

Quality Assurance Officer
Dave Peck
U.S. Environmental Protection Agency
NHEERL Western Ecology Division
200 S.W. 35th Street
Corvallis, OR 97333
541-754-4426
541-754-4716(FAX)
davep@mail.cor.epa.gov

Information Management, EMAP-Surface Waters
Marlys Cappaert
OAO c/o U.S. Environmental Protection Agency
NHEERL Western Ecology Division
200 S.W. 35th Street
Corvallis, OR 97333
541-754-4467
541-754-4716(FAX)
cappaert@mail.cor.epa.gov